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Report on the technical review of the seventh national communication of Slovakia

Parties included in Annex I to the Convention were requested by decision 9/CP.16 to submit their seventh national communication to the secretariat by 1 January 2018. According to decision 15/CMP.1, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol are required to include in their national communications supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. This report presents the results of the technical review of the seventh national communication and relevant supplementary information under the Kyoto Protocol of Slovakia, conducted by an expert review team in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention" and the "Guidelines for review under Article 8 of the Kyoto Protocol".

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Abbreviations and acronyms

AEA	annual emission allocation
Annex II Party	Party included in Annex II to the Convention
BR	biennial report
CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CTF	common tabular format
ERT	expert review team
ESD	effort-sharing decision
EU	European Union
EU ETS	European Union Emissions Trading System
F-gas	fluorinated gas
GDP	gross domestic product
GHG	greenhouse gas
GIC	gross inland energy consumption
GWP	global warming potential
HFC	hydrofluorocarbon
IE	included elsewhere
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
KP2	second commitment period of the Kyoto Protocol
LULUCF	land use, land-use change and forestry
NA	not applicable
NC	national communication
NE	not estimated
NF_3	nitrogen trifluoride
NGO	non-governmental organization
NIR	national inventory report
NO	not occurring
non-ETS sectors	sectors not covered by the European Union Emissions Trading System
N_2O	nitrous oxide
PaMs	policies and measures
PFC	perfluorocarbon
reporting guidelines for supplementary information	"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol, Part II: Reporting of supplementary information under Article 7, paragraph 2"
RES	renewable energy sources
SF_6	sulfur hexafluoride
SHMU	Slovak Hydrometeorological Institute
UNFCCC reporting guidelines on NCs	"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications"
WAM	'with additional measures'
WEM	'with measures'
WOM	'without measures'

I. Introduction and summary

A. Introduction

1. This is a report on the centralized technical review of the NC7 of Slovakia. The review was coordinated by the secretariat in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention", particularly "Part V: UNFCCC guidelines for the technical review of national communications from Parties included in Annex I to the Convention" (annex to decision 13/CP.20), and the "Guidelines for review under Article 8 of the Kyoto Protocol" (annex to decision 22/CMP.1 and annex I to decision 4/CMP.11).[1]

2. In accordance with the same decisions, a draft version of this report was transmitted to the Government of Slovakia, which provided no comments to be considered or incorporated into this final version of the report.

3. The review was conducted from 12 to 17 March 2018 in Bonn, Germany, by the following team of nominated experts from the UNFCCC roster of experts: Ms. Asia Adlan (Sudan), Mr. Menouer Boughedaoui (Algeria), Mr. Christo Christov (Bulgaria), Ms. Nancy Liliana Gamba Cabezas (Colombia), Mr. Domenico Gaudioso (Italy), Mr. Liviu Gheorghe (Romania), Mr. Dirk Günther (Germany), Ms. Fui Pin Koh (Malaysia), Ms. Sangchan Limjirakan (Thailand), Mr. Juan Luis Martin Ortega (Spain), Mr. Engin Mert (Turkey), Ms. Gherghita Nicodim (Romania), Mr. Koki Okawa (Japan), Ms. Marcela Itzel Olguin-Alvarez (Mexico), Mr. Brian Quirke (Ireland), Ms. Kristina Saarinen (Finland), Ms. Marina Shvangiradze (Georgia) and Ms. Caroline Tagwireyi (Zimbabwe). Mr. Gaudioso, Ms. Saarinen and Ms. Shvangiradze were the lead reviewers. The review was coordinated by Ms. Veronica Colerio, Ms. Suvi Monni and Ms. Sevdalina Todorova (UNFCCC secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the NC7 of Slovakia in accordance with the UNFCCC reporting guidelines on NCs (decision 4/CP.5) and the reporting guidelines for supplementary information, in particular the supplementary information required under Article 7, paragraph 2, and on the minimization of adverse impacts under Article 3, paragraph 14, of the Kyoto Protocol (annex to decision 15/CMP.1 and annex III to decision 3/CMP.11).

1. Timeliness

5. The NC7 was submitted on 15 December 2017, before the deadline of 1 January 2018 mandated by decision 9/CP.16.

2. Completeness, transparency of reporting and adherence to the reporting guidelines

6. Issues and gaps identified by the ERT related to the reported information are presented in table 1. The information reported by Slovakia in its NC7, including the supplementary information under the Kyoto Protocol, mostly adheres to the UNFCCC reporting guidelines on NCs.

[1] At the time of the publication of this report, the Party had submitted its instrument of acceptance of the Doha Amendment; however, the amendment had not yet entered into force. The implementation of the provisions of the Doha Amendment is therefore considered in this report in the context of decision 1/CMP.8, paragraph 6, pending the entry into force of the amendment.

Table 1

Assessment of completeness and transparency of mandatory information reported by Slovakia in its seventh national communication, including supplementary information under the Kyoto Protocol

Section of NC	*Completeness*	*Transparency*	*Reference to description of recommendations*	*Supplementary information under the Kyoto Protocol*	*Completeness*	*Transparency*	*Reference to description of recommendations*
Executive summary	Complete	Transparent		National system	Complete	Transparent	
National circumstances	Complete	Transparent		National registry	Complete	Transparent	
GHG inventory	Complete	Transparent		Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Complete	Transparent	
PaMs	Complete	Mostly transparent	Issues 1, 5 and 6 in table 8	PaMs in accordance with Article 2	Complete	Mostly transparent	Issue 6 in table 8
Projections and the total effect of PaMs	Mostly complete	Mostly transparent	Issue 4 in table 12; issues 1 and 2 in table 14	Domestic and regional programmes and/or arrangements and procedures	Mostly complete	Transparent	Issue 1 in table 6
Vulnerability assessment, climate change impacts and adaptation measures	Complete	Mostly transparent	Issue 1 in table 16	Information under Article 10[a]	NA	NA	NA
Financial resources and transfer of technology[b]	NA	NA	NA	Financial resources[c]	NA	NA	NA
Research and systematic observation	Complete	Mostly transparent	Issue 1 in table 17	Minimization of adverse impacts in accordance with Article 3, paragraph 14	Complete	Transparent	
Education, training and public awareness	Complete	Transparent					

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in chapter III below.

[a] The assessment refers to information provided by the Party on the provisions contained in Article 4, paragraphs 3, 5 and 7, of the Convention reported under Article 10 of the Kyoto Protocol, which is relevant to Annex II Parties only. Assessment of the information provided by the Party on the other provisions of Article 10 of the Kyoto Protocol is provided under the relevant substantive headings under the Convention, for example research and systematic observation.

[b] Slovakia is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention.

[c] Slovakia is not an Annex II Party and is therefore not obliged to provide information on financial resources under Article 11 of the Kyoto Protocol, including on "new and additional" resources.

3. Summary of reviewed supplementary information under the Kyoto Protocol

7. The supplementary information under Article 7, paragraph 2, of the Kyoto Protocol is incorporated in different sections of the NC7, and the supplementary information under Article 7, paragraph 1, of the Kyoto Protocol is reported in the NIR of the 2017 annual submission. Table 2 provides references to where the information is reported. The technical assessment of the information reported under Article 7, paragraphs 1 and 2, of the Kyoto Protocol is contained in the relevant sections of this report.

Table 2
Overview of supplementary information under the Kyoto Protocol reported by Slovakia

Supplementary information	*Reference to section of the NC7*
National registry	3.4
National system	3.3
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	4.3.2 and 5.3
PaMs in accordance with Article 2	4.3.3
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	2.1
Information under Article 10	3.3, 4.3.3 and 6–9
Financial resources[a]	NA
Minimization of adverse impacts in accordance with Article 3, paragraph 14	Reported in the NIR of the Party's 2017 annual submission

[a] Reporting on financial resources under the Kyoto Protocol is relevant to Annex II Parties. As Slovakia is not an Annex II Party, it does not have an obligation to provide information on financial resources under Article 11 of the Kyoto Protocol, including on "new and additional" resources.

II. Technical review of the information reported in the seventh national communication, including the supplementary information under the Kyoto Protocol

A. Information on national circumstances and greenhouse gas emissions and removals

1. National circumstances relevant to greenhouse gas emissions and removals

(a) Technical assessment of the reported information

8. The national circumstances of Slovakia explain the relationship between its historic and future emission trends and the climate change policy agenda. The changing nature of those circumstances defines the factors that affect the climate policy development and implementation of the Convention. The NC7 contains key data on legislation, population trends, geography and land use, climate and climate change, economic developments, energy, transport, the buildings sector, industry, trade, the services sector, agriculture, forestry, resource efficiency and wastewater.

9. Total GHG emissions in Slovakia (without LULUCF) decreased by 44.6 per cent from 1990 to 2015. The most important reductions were achieved in the stationary combustion and agricultural sectors, where GHG emissions decreased by 59.7 and 54.2 per cent, respectively, compared with the base year (1990). These reductions were mainly driven by the transition to a market economy in the early 1990s, the reduced energy intensity and improved energy efficiency in the energy sector and the changes in the management practices of agriculture in the later years. The Party has a balanced energy mix, including nuclear fuel use, and an increasing share of RES.

10. The ERT noted that, with regard to climate policy, Slovakia has incorporated the EU climate and energy package into national legislation, which provides the platform to achieve the required level of mitigation to meet its targets. An important role in the national policy and decision-making process with respect to climate change is played by the High-Level Committee for the Coordination of Climate Change Policy chaired by the State Secretary of the Ministry of Environment.

11. The population trend for the 1990–2015 period is relatively stable, showing only a slight increase of 2.4 per cent. Given the comparatively stable population, a positive indicator is the decrease in emissions from 14.05 t CO_2 eq per capita in 1990 to 7.61 t CO_2 eq per capita in 2015. The emission level per capita in Slovakia is below the average level for the 28 member States of the EU, which was 8.75 t CO_2 eq per capita[2] in 2015.

12. The NC indicated an increase in the GDP and GDP per capita values in the period 2007–2016, with the highest annual growth noted in 2007 (10.5 per cent). In 2016, Slovakia's annual GDP growth (in 2010 prices) was 3.3 per cent, driven mainly by household consumption and by net exports.

13. The ERT noted that during the period 1990–2015 Slovakia's population and GDP increased by 2.4 and 97.9 per cent, respectively, while GHG emissions per GDP unit and GHG emissions per capita decreased by 45.8 and 72.0 per cent, respectively. These indicators show a significant decoupling of total GHG emissions from economic growth. Table 3 illustrates the national circumstances of Slovakia by providing some indicators relevant to emissions and removals.

Table 3
Indicators relevant to greenhouse gas emissions and removals for Slovakia for the period 1990–2015

						Change (%)	
Indicator	*1990*	*2000*	*2010*	*2014*	*2015*	*1990–2015*	*2014–2015*
GDP per capita (thousands 2010 USD using purchasing power parity)	14.53	15.51	25.01	27.08	28.09	93.3	3.7
GHG emissions without LULUCF per capita (t CO_2 eq)	14.05	9.25	8.64	7.51	7.61	–45.8	1.4
GHG emissions without LULUCF per GDP unit (kg CO_2 eq per 2010 USD using purchasing power parity)	0.97	0.60	0.35	0.28	0.27	–72.0	–2.3

Sources: (1) GHG emission data: Slovakia's 2017 GHG inventory submission, version 3; (2) population and GDP: World Bank.

Note: The ratios per capita and per GDP unit are calculated relative to GHG emissions without LULUCF; the ratios are calculated using the exact (not rounded) values and may therefore differ from a ratio calculated with the rounded numbers provided in the table.

(b) Assessment of adherence to the reporting guidelines

14. The ERT assessed the information reported in the NC7 of Slovakia and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines on NCs. There were no issues raised during the review relating to the topics discussed in this chapter of the review report.

[2] See http://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer.

2. Information on greenhouse gas emissions and removals

(a) Technical assessment of the reported information

15. Total GHG emissions[3] excluding emissions and removals from LULUCF decreased by 44.6 per cent between 1990 and 2015, while total GHG emissions including net emissions or removals from LULUCF decreased by 46.6 per cent over the same period. Table 4 illustrates the emission trends by sector and by gas for Slovakia.

Table 4
Greenhouse gas emissions by sector and by gas for Slovakia for the period 1990–2015

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2014*	*2015*	*1990–2015*	*2014–2015*	*1990*	*2015*
Sector									
1. Energy	56 667.66	36 539.52	32 741.10	27 089.27	27 445.21	–51.6	1.3	76.1	66.5
A1. Energy industries	19 159.93	12 218.46	9 141.57	7 136.78	7 652.16	–60.1	7.2	25.7	18.5
A2. Manufacturing industries and construction	15 890.35	9 313.75	7 645.83	7 289.66	6 755.27	–57.5	–7.3	21.3	16.4
A3. Transport	6 823.77	5 649.36	7 376.83	6 493.46	6 704.75	–1.7	3.3	9.2	16.2
A4. and A5. Other	12 381.02	7 012.26	6 680.19	4 686.88	4 730.15	–61.8	0.9	16.6	11.5
B. Fugitive emissions from fuels	2 412.60	2 345.69	1 896.68	1 482.49	1 602.89	–33.6	8.1	3.2	3.9
C. CO_2 transport and storage	NO	NO	NO	NO	NO	NA	NA	NA	NA
2. IPPU	9 813.05	8 594.17	9 609.94	9 064.43	9 285.16	–5.4	2.4	13.2	22.5
3. Agriculture	6 587.01	3 378.74	2 813.38	3 047.13	3 014.46	–54.2	–1.1	8.8	7.3
4. LULUCF	–8 991.25	–9 718.90	–6 012.61	–6 121.76	–6 428.80	–28.5	5.0	NA	NA
5. Waste	1 392.62	1 350.64	1 395.27	1 476.96	1 524.67	9.5	3.2	1.9	3.7
6. Other	NO	NO	NO	NO	NO	NA	NA	NA	NA
Gas[a]									
CO_2	61 935.05	41 265.80	38 536.13	33 442.47	33 816.79	–45.4	1.1	83.2	81.9
CH_4	7 198.63	5 355.32	4 531.00	4 215.96	4 352.44	–39.5	3.2	9.7	10.5
N_2O	5 011.74	3 108.95	2 850.69	2 340.21	2 342.56	–53.3	0.1	6.7	5.7
HFCs	NO	105.04	597.24	653.84	734.88	–	–	–	1.8
PFCs	314.86	14.91	25.01	11.15	8.50	–97.3	–23.7	0.4	0.0
SF_6	0.06	13.04	19.62	14.17	14.31	24 423.5	1.0	0.0	0.0
NF_3	NO	NO	NO	NO	NO	–	–	–	–
Total GHG emissions without LULUCF	**74 460.34**	**49 863.07**	**46 559.69**	**40 6[illegible].79**	**41 269.49**	**–44.6**	**1.5**	**100.0**	**100.0**
Total GHG emissions with LULUCF	**65 469.09**	**40 144.17**	**40 547.07**	**34 556.04**	**34 840.70**	**–46.8**	**0.8**	**NA**	**NA**

Source: GHG emission data: Slovakia's 2017 annual submission, version 3.
[a] Emissions by gas without LULUCF and without indirect CO_2.

16. The decrease in total emissions was driven by the transition to a market-based economy with an increased share of services in the GDP and technological and structural changes of the economy, as well as by the reduced energy intensity for some industrial

[3] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of CO_2 eq excluding LULUCF, unless otherwise specified. Values in this paragraph are calculated based on the 2017 annual submission, version 3.

sectors, increased share of gas and RES in the fuel mix and improved energy efficiency. The decrease in emissions can also be attributed to the impact of implemented air protection legislation and PaMs related to climate change.

17. Major changes and recalculations from the NC6 were reported and explained in the NC7 regarding updates and revisions to methodologies and emission factors for all sources and gases owing to the implementation of the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* and based on recommendations from previous review reports that have affected the emission time series.

18. Between 1990 and 2015, GHG emissions from the energy sector decreased by 51.6 per cent (29,222.46 kt CO_2 eq), owing mainly to structural changes in the energy sector and the overall economy, as well as the enforcement of legal provisions regarding air quality. The emission decrease is also due to improvements in energy efficiency and fuel switching from coal or liquid fuels to gas or biomass. As a result of these activities, the energy intensity of the country's economy decreased by 57.0 per cent between 1995 and 2015, but the Party is still one of the seven most energy-intensive economies in the EU. The decrease in emissions from the energy sector differs between subsectors, as it is significant (59.7 per cent or 28,293.73 kt CO_2 eq) for GHG emissions from stationary combustion and negligible for transport (1.7 per cent or 119.02 kt CO_2 eq).

19. Between 1990 and 2015, GHG emissions from IPPU decreased by 5.4 per cent (527.89 kt CO_2 eq), owing mainly to the restructuring of the sector and decreased industrial output. Slovakia considers that the main driver of its IPPU GHG emissions is the value added growth of each industry (i.e. motor vehicles, trailers and semi-trailers held a dominant position in revenue generation in industrial production throughout the assessed period); however, how this factor influences emissions from the industrial subsectors and the trend in GHG emissions from the sector is not clearly specified.

20. Between 1990 and 2015, GHG emissions from the agriculture sector decreased by 54.2 per cent (3,572.55 kt CO_2 eq), owing mainly to changes in management practices, which led to a decrease in the cattle population and the reduced use of synthetic fertilizers. The LULUCF sector was a net sink of 6,428.80 kt CO_2 eq in Slovakia in 2015; net GHG removals have decreased by 2,562.45 kt CO_2 eq since 1990. The observed trend in emissions was due to a natural disaster in the Tatra mountains in 2004, but also driven by decreases of cropland and other land categories owing to the changes in land use through the development of transport infrastructure, industrial areas and municipal development. Between 1990 and 2015, GHG emissions from the waste sector increased by 9.5 per cent (132.05 kt CO_2 eq), owing mainly to an increase in waste amounts from economic development and an increase in CH_4 emissions from landfills.

21. The decrease in total GHG emissions can be attributed mainly to CO_2 emissions, which decreased by 45.4 per cent (28,118.26 kt CO_2 eq) (excluding LULUCF) between 1990 and 2015. Over the same period, emissions of CH_4 decreased by 39.5 per cent (2,846.19 kt CO_2 eq), while emissions of N_2O decreased by 53.3 per cent (2,669.18 kt CO_2 eq). The combined F-gases (PFCs, HFCs and SF_6) increased by 140.6 per cent (442.77 kt CO_2 eq) over the same period. The increase in emissions of F-gases was driven mainly by their increased use in industry (i.e. automotive industry, for air conditioning applications).

22. The summary information provided on GHG emissions was consistent with the information reported in the 2017 annual submission.

(b) Assessment of adherence to the reporting guidelines

23. The ERT assessed the information reported in the NC7 of Slovakia and identified an issue relating to transparency and adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table 5.

Table 5
Findings on greenhouse gas inventory information from the review of the seventh national communication of Slovakia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 12	Slovakia reported information on the national GHG inventory and emission trends; however, the ERT noted that the description of the factors underlying emission trends lacks clarity in the IPPU sector (i.e. it is not clear how the contribution of each industrial sector to the GDP is influencing the GHG emissions).
	Issue type: transparency	During the review, the additional information provided did not contribute to the improvement of transparency.
	Assessment: encouragement	The ERT encourages Slovakia to improve the transparency of its reporting by providing a clear description of the factors underlying emission trends in the IPPU sector in its next NC (i.e. description of the main changes in production levels and upgrades in technologies/processes used, resulting in increase/decrease of specific GHG emissions).

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

3. National system for the estimation of anthropogenic emissions by sources and removals by sinks

(a) Technical assessment of the reported information

24. Slovakia provided in the NC7 a description of how its national system for the estimation of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol is performing the general and specific functions defined in the annex to decision 19/CMP.1. The description includes all the elements mandated by paragraph 30 of the annex to decision 15/CMP.1. The NC7 also contains a reference to the description of the national system provided in the report mandated by decision 2/CMP.8, submitted in 2016,[4] and the NIR of the 2017 annual submission. The ERT took note of the review of the changes to the national system reflected in the report on the individual review of the 2017 annual submission of Slovakia.

(b) Assessment of adherence to the reporting guidelines

25. The ERT assessed the information reported in the NC7 of Slovakia and recognized that the reporting is complete and transparent. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

4. National registry

(a) Technical assessment of the reported information

26. In the NC7 Slovakia provided information on how its national registry performs the functions in accordance with the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1 and complies with the requirements of the technical standards for data exchange between registry systems. The ERT took note of the review of the changes to the national registry reflected in the report on the individual review of the 2017 annual submission of Slovakia.

[4] Slovakia's report to facilitate the calculation of the assigned amount pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol for the second commitment period (2013–2020), available at http://unfccc.int/national_reports/initial_reports_under_the_kyoto_protocol/second_commitment_period_2013-2020/items/9499.php.

(b) Assessment of adherence to the reporting guidelines

27. The ERT assessed the information reported in the NC7 of Slovakia and recognized that the reporting is complete and transparent. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

B. Information on policies and measures and institutional arrangements

1. Domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol

(a) Technical assessment of the reported information

28. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, Slovakia committed to contributing to the joint EU effort to reduce GHG emissions by 20 per cent below the base-year level.

29. Implementation of the Kyoto Protocol by Slovakia is underpinned by the combination of environmental domestic PaMs and the radical change in the structure of the industrial sector under the National Reform Programme to meet the structural policy objectives of the EU 2020 climate and energy package. It is also supported by the update of the National Environmental Strategy to include new principles, targets and measures and the Low-carbon Strategy under preparation with long-term low-emission policies under the Paris Agreement up to 2050.

30. The overall responsibility for climate change policymaking lies with the Ministry of Environment, which is responsible for developing a national environmental policy and climate change and adaptation measures. Key agencies involved in the Kyoto Protocol implementation are the Climate Change Policy and the Emissions Trading departments of the Ministry of Environment, SHMU, the Slovak Innovation and Energy Agency, the Statistical Office and other relevant ministries.

31. In 2011, the Slovak Committee on the Climate-Energy Package was replaced by the High-Level Committee for Coordination of Climate Change Policy at the level of State secretaries chaired by the State Secretary of the Ministry of Environment, including all the State secretaries of different ministries. The main role of this coordination committee is to coordinate and implement the necessary mitigation and adaptation PaMs to fulfil Slovakia's international obligations. It reports annually to the Slovak Government on the progress of the fulfilment of the international climate change policy commitments.

32. Slovakia has legislative arrangements and administrative procedures in place to make information publicly accessible. The Party reported on how reports are made available for public review and how information and feedback are collected to be considered in reports (NC and NIR). They are uploaded to the website of SHMU as part of the quality management system of Slovakia. The report of the coordination committee[5] submitted annually to the Government is made available also to the public.

33. The previous review report[6] indicates that the NC6 did not include, or only partly included, a description of the national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, forest management under Article 3, paragraph 4, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and the sustainable use of natural resources. During the previous review, Slovakia provided information on the national arrangements for the implementation of activities under Article 3, paragraph 3, and elected activities under Article 3, paragraph 4, of the Kyoto Protocol. Slovakia did not include this information in its NC7.

[5] Available in Slovakian at http://www.rokovania.sk/Rokovanie.aspx/BodRokovanieDetail?idMaterial=26360.

[6] FCCC/IDR.6/SVK, paragraph 19.

(b) Assessment of adherence to the reporting guidelines

34. The ERT assessed the information reported in the NC7 of Slovakia and identified an issue relating to completeness. The finding is described in table 6.

Table 6

Findings on domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol from the review of the seventh national communication of Slovakia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation*
1	Reporting requirement specified in paragraph 38 Issue type: completeness Assessment: recommendation	The ERT noted that the NC7 does not provide a description of Slovakia's national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and the sustainable use of natural resources. The issue was raised in the previous review, but the information provided during that review was not included in the NC7. The ERT reiterated the recommendation made in the previous review report (FCCC/IDR.6/SVK, para. 19) that Slovakia improve the completeness of its reporting by including in its next submission the information on its national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and sustainable use of natural resources.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the reporting guidelines for supplementary information. The reporting on the requirements not included in this table is considered to be complete and transparent.

2. Policies and measures, including those in accordance with Article 2 of the Kyoto Protocol

(a) Technical assessment of the reported information

35. Slovakia provided information on its package of PaMs implemented, adopted and planned, by sector and by gas, in order to fulfil its commitments under the Convention and its Kyoto Protocol. The Party provided information on a set of PaMs similar to those previously reported, with a few exceptions. Slovakia reported that none of the PaMs with a significant effect on GHG emission reduction have been cancelled without replacement.

36. Further, the Party reported on its policy context and the legal and institutional arrangements put in place to implement its commitments and monitor and evaluate the effectiveness of its PaMs. Slovakia mentioned in the NC7 that it has not made changes to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress made towards its target since the NC6. The national inventory system, which also provides the framework for the domestic system for developing PaMs and projections, and changes in national inventory arrangements since the NC6 were described in chapter 3.3 of the NC7.

37. The ERT noted that Slovakia makes reference to the monitoring process that is harmonized for all EU member States, laid down in the EU monitoring mechanism regulation (525/2013), adopted in May 2013, which aims to improve the quality of the data reported and to assist the EU member States with tracking their progress towards their emission targets for 2013–2020. In 2014, an EU implementing regulation (749/2014) and delegated regulation (666/2014) were adopted to enable the implementation of the monitoring mechanism regulation and several of its provisions, specifying in more detail the structure of the information, reporting formats and submission procedures.

38. Slovakia gave priority to implementing the PaMs that make the most significant contribution to its emission reduction efforts. Although the measures reported by the Party (e.g. the increased share of RES in the energy mix) with their reported and expected impacts clearly demonstrate their effect on the long-term GHG emissions, the ERT noted

that Slovakia did not explicitly provide information on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals in accordance with the objective of the Convention. Slovakia did not report on how it periodically updates its PaMs to reduce greater levels of emissions, but it reported on the PaMs that have been amended since the previous submission.

39. Some PaMs are deferred to the regional and local level. Slovakia has provided information on PaMs that are implemented at the EU level as well as the national, regional and local (municipality) level. For example, the Rural Development Programme for the period 2014–2020 has implementing entities at the national and regional level.

40. Under the Convention Slovakia committed to contributing to the achievement of the joint EU economy-wide emission reduction target of 20 per cent below the 1990 level by 2020. The EU offered to move to a 30 per cent reduction target on the condition that other developed countries commit to a comparable target and developing countries contribute according to their responsibilities and respective capabilities under a new global climate change agreement.

41. The key overarching cross-sectoral policy in the EU is the 2020 climate and energy package, adopted in 2009, which includes the revised EU ETS and the ESD. The package is supplemented by renewable energy and energy efficiency legislation and legislative proposals on the 2020 targets for CO_2 emissions from cars and vans, the carbon capture and storage directive, and the general programmes for environmental conservation, namely the 7th Environment Action Programme and the clean air policy package.

42. In operation since 2005, the EU ETS is a cap-and-trade system that covers all significant energy-intensive installations (mainly large point emissions sources such as power plants and industrial facilities) that produce 40–45 per cent of the GHG emissions of the EU. It is expected that the EU ETS will guarantee that the 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for sectors under the scheme. The third phase of the EU ETS started in 2013 and the system now includes aircraft operations (since 2012), N_2O emissions from chemical industries, PFC emissions from aluminium production and CO_2 emissions from industrial processes (since 2013). In 2015, the EU ETS share in the total GHG emissions of Slovakia was 51.3 per cent.

43. The ESD became operational in 2013 and covers sectors outside the EU ETS, including transport (excluding domestic and international aviation and international maritime transport), residential and commercial buildings, agriculture and waste, together accounting for 55–60 per cent of the GHG emissions of the EU. The aim of the ESD is to decrease GHG emissions in the EU by 10 per cent below the 2005 level by 2020 and it includes binding annual targets for each member State for 2013–2020. Under the ESD, Slovakia has a target of limiting its emission growth to 13 per cent above the 2005 level by 2020 for non-ETS sectors.

44. In the NC7 Slovakia also highlighted the EU-wide mitigation actions that are under development, such as a legislative proposal by the European Commission to reform the EU ETS for the period after 2020. The proposal is currently being discussed in the 'trilogues' process with the goal of reaching a common position between the European Parliament and the Council before it can be adopted.

45. Slovakia introduced national-level policies to achieve its targets under the ESD and domestic emission reduction targets. The Energy Policy of the Slovak Republic adopted in 2014 (Resolution No. 548/2014) sets the main priorities in the central policy of the energy sector to 2035 with a view to 2050. It is aimed at ensuring the sustainability of the energy sector by contributing to the sustainable growth of the national economy and its competitiveness. Reliable and stable energy supply, efficient energy utilization at optimum costs and environmental protection are priority areas of the policy. The Energy Efficiency Action Plan is aimed at increasing energy efficiency across the relevant sectors, and the National Renewable Energy Action Plan is aimed at increasing the share of RES in heat and electricity generation. The mitigation effect of the Energy Efficiency Action Plan for the period 2014–2016 with an outlook towards 2020 is estimated to be the most significant among the PaMs, with a mitigation potential of 333.82 kt CO_2 eq for 2020 and 297.65 kt CO_2 eq for 2030. Government Regulation No. 246/2006 Coll. is aimed at increasing the

share of bioethanol and biodiesel blended gasoline and diesel in Slovakia. EU regulations 2009/443/EC and 2011/510/EC are aimed at increasing the efficiency of cars and reducing GHG emissions. Ordinance of the Government of the Slovak Republic No. 342/2014 Coll. lays down the rules for granting agricultural aid in respect of the direct payment schemes on animal feeding, reduction in the number of dairy cattle and agricultural soils. Slovakia did not provide the quantified estimated impact of implemented PaMs in the agriculture, LULUCF and waste sectors.

46. Slovakia highlighted the domestic mitigation actions that are under development, such as Act No. 414/2012 Coll. on emissions trading and its amendments (adding lime and cement production) or the next phase of the Energy Efficiency Action Plan for the period 2017–2019 with an outlook towards 2020. This plan, which is reported under the planned measures, contains a group of measures aimed at increasing energy efficiency across different sectors, such as residential buildings, family houses, industry and public sector buildings. The combined mitigation impact of the planned measures under the action plan is 1,341.5 kt CO_2 eq and 1,239.16 kt CO_2 eq for 2020 and 2030, respectively.

47. Table 7 provides a summary of the reported information on the PaMs of Slovakia.

Table 7
Summary of information on policies and measures reported by Slovakia

Sector	*Key PaMs*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*	*Estimate of mitigation impact by 2030 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	EU ETS; ESD	IE	IE
Energy	National Energy Policy (Resolution No. 548/2014)	NE	NE
Transport	Government Regulation No. 246/2006 Coll. on the minimum quantity of fuels produced from renewable sources in the petrol and diesel fuels placed on the market in the Slovak Republic (implemented)	145.29	299.51
	Effect of EU legislation – regulations 2009/443/EC and 2011/510/EC – which sets limits for CO_2 emissions from cars and vans (implemented)	163.41	751.24
Renewable energy	National Renewable Energy Action Plan (Resolution No. 677/2010) (implemented)	292.42	480.97
	Emissions trading, the new allocation – Act No. 414/2012 – energy supply (implemented)	226.03	211.15
Energy efficiency	Energy Efficiency Action Plan (2014–2016) with an outlook towards 2020 (implemented)	333.82	297.65
	Energy Efficiency Action Plan for the period 2017– 2019 with an outlook towards 2020 (planned)	1 341.5	1 239.16
IPPU	Act No. 414/2012 Coll. on emissions trading and its amendments – nitric acid production, aluminium and iron and steel production (implemented)	290.10	238.06
	Act No. 414/2012 Coll. on emissions trading and its amendments – nitric acid production, cement production, aluminium and lime production (planned)	89.66	177.52
Agriculture	Ordinance of the Government of the Slovak Republic No. 342/2014 Coll. laying down the rules for the granting of agricultural aid in respect of the direct payments schemes (planned)	208.77	171.4

Sector	*Key PaMs*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*	*Estimate of mitigation impact by 2030 (kt CO_2 eq)*
LULUCF	Rural Development Programme for 2014–2020 (implemented)	NE	NE
Waste	Act No. 79/2015 Coll. on waste and amendments to certain acts (implemented)	NE	NE

Note: The estimates of mitigation impact are estimates of emissions of CO_2 or CO_2 eq avoided in a given year as a result of the implementation of mitigation actions

(b) Policies and measures in the energy sector

48. The energy sector is the main source of GHG emissions in Slovakia, with 66.5 per cent of overall emissions in 2015. The value is below the share of the sector in 1990 (76.1 per cent) and represents a decrease of 51.6 per cent in terms of GHG emissions. Meanwhile the share of the transport sector increased from 9.2 per cent in 1990 to 16.4 per cent of the total GHG emissions of Slovakia in 2015 (for information on the emission trend in the sector, see table 4 and para. 18 above). Despite the achieved progress in reducing energy intensity, Slovakia remains an energy-intensive economy, with energy intensity approximately 1.8 times higher than the average of the 28 EU member States.

49. **Energy supply**. Slovakia has a balanced mix of nuclear fuel, fossil fuels and RES in its GIC. Shares of primary energy sources in GIC in 2015 were as follows: natural gas 23.8 per cent, coal 20.0 per cent, nuclear fuel 23.7 per cent, oil 20.4 per cent and RES including hydropower 10.9 per cent. The focus of Slovakia's energy policy approved by its Government in 2014 is optimizing the energy mix in terms of energy security. According to the NC7, GIC has a long-term downward trend in Slovakia, along with the growth of GDP. The GIC decline occurred mainly as a result of industrial restructuring, with higher added value and wider application of the principles of energy efficiency. The overall decrease of 7.3 per cent in GIC in Slovakia occurred in the period 1995–2015. The energy intensity (ratio of GIC to GDP) of Slovakia over the same period dropped by 57.0 per cent.

50. **Renewable energy sources**. Slovakia reported on regulatory and strategic measures for promoting the use of RES in transport, and for generating heat and electricity. Under the renewable energy directive (directive 2009/28/EC)[7] the target for the share of RES in the gross final energy consumption of Slovakia is 14 per cent by 2020. The National Renewable Energy Action Plan (Resolution No. 677/2010) was adopted in 2010 with the aim of increasing the share of electricity from RES in the power system and increased consumption of biomass for producing heat and electricity. The National Action Plan for Biomass Use (Resolution No. 130/2008) is in place to increase biomass use in the fuel mix. As a result of the implemented measures, the share of RES in gross final energy consumption in 2015 was 12.9 per cent, which means that Slovakia outperformed not only the interim target for 2015–2016 (10 per cent) but the 2017–2018 target (11.4 per cent) as well, and it is on track to meet its 2020 target (14 per cent).

51. **Energy efficiency**. In its NC7, Slovakia included the implemented measures under the Energy Efficiency Action Plan for the period 2014–2016 with an outlook towards 2020 and the planned Energy Efficiency Action Plan for the period 2017–2019 with an outlook towards 2020. The energy efficiency action plans include existing as well as new measures to increase energy efficiency across the residential and industrial sectors. Under the EU energy efficiency directive (directive 2012/27/EU)[8] the national indicative targets for Slovakia include a decrease of final energy consumption to 387 PJ and primary energy consumption to 686 PJ in 2020. Slovakia is well on track to meet its 2020 targets on energy efficiency. Its primary energy consumption (15.4 Mtoe in 2015) is already below the 2020 target of 16.4 Mtoe. The final energy consumption (10.1 Mtoe in 2015) is still higher than

[7] See http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0028.

[8] See http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1399375464230&uri=CELEX%3A32012L0027.

the 2020 target of 9 Mtoe. Both numbers marked a slight increase in 2015 compared with the previous year (with 0.8 per cent and 3.0 per cent, respectively). The general energy consumption trend over the past 10 years was decreasing (with some 13 per cent for final energy consumption). However, the limits on decreasing the country's energy consumption were clearly visible in the last two years. Therefore, further efforts are needed to lower final energy consumption in Slovakia.

52. **Residential and commercial sectors**. Slovakia reported on the State Housing Development Fund, which is in place to support the expansion and modernization of housing units in the form of favourable long-term loans. The loans are used for improving the thermal performance of residential buildings. The energy efficiency action plans for the periods 2014–2016 and 2017–2019 with an outlook towards 2020 focus on improving the thermal performance of public sector buildings such as office buildings, wholesale and retail trade, schools and hospitals with the target of reducing energy use by at least 20 per cent. Unlike those for residential buildings, the measures for public sector buildings are expected to be financed from their own resources.

53. **Transport sector**. Slovakia reported on several policies and strategic measures relating to reducing emissions from the transport sector. Government Regulation No. 246/2006 Coll. on the minimum quantity of fuels produced from renewable sources in petrol and diesel fuels ensures a continuous increase in the share of bioethanol and biodiesel blended in gasoline and diesel. Measures supporting hybrid transport in cities and a modal shift to public transport are contained in the Energy Efficiency Action Plan and Government Resolution No. 301/2011 Coll. The Strategy of Development of Electromobility in Slovakia deals with support for electric vehicles. Other measures include implementation of EURO 6 emission standards contained in the Transport Policy of the Slovak Republic and improving transport behaviour and road infrastructure. As a result of the implementation of the EU white paper on transport,[9] it is expected that 30 per cent of goods currently transported by road for distances over 300 km will be transported by rail.

54. The NC7 includes information on how Slovakia promotes and implements the decisions of the International Civil Aviation Organization. Act No. 414/2012 Coll. on emissions trading includes an allocation for civil aviation to set the decrease of GHG emissions from civil aviation through the EU ETS cap-and-trade system. However, Slovakia did not provide updated information on why the provisions of IMO to limit emissions from marine bunker fuels are not applicable to it because of its national circumstances.

55. **Industrial sector**. The share of industry in the GDP of Slovakia was 25.8 per cent in 2000, and it decreased to 24.6 per cent in 2016. Manufacturing represented 21.4 per cent of GDP in 2000, and its share decreased to 20.6 per cent in 2016. The share of industry in the final energy consumption of fuel, electricity and heat in the national economy in 2001 was 35.8 per cent, and in 2015 this share increased to 36.2 per cent. The Energy Efficiency Action Plan for the period 2017–2019 with an outlook towards 2020 includes measures for efficiency improvement and reducing the energy consumption of the industrial sector.

(c) Policies and measures in other sectors

56. **Industrial processes**. Total emissions from the IPPU sector were 9,285.16 kt CO_2 eq in 2015, which was a decrease of 5.4 per cent compared with the base year and an increase of 2.4 per cent compared with the previous year. The decrease in GHG emissions was caused mainly by the implementation of Act No. 414/2012 Coll. on emissions trading and its amendments. In addition to nitric acid, aluminium and iron and steel production, the two new sectors included under the act are lime and cement production. The act provides for the inclusion of abatement technologies, for increased efficiency in order to control emissions and for raw material substitution. Thus, the estimated mitigation impact of

[9] Available at http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0144&from=EN.

installing abatement technologies in iron and steel production is 213.74 kt CO_2 eq for 2020 and 223.32 kt CO_2 eq for 2030.

57. The other measures in the sector include the use of best available technologies in servicing electrical equipment, the increased use of new HFC gases with lower GWP and the decrease in the content of N_2O in aerosol cans. The quantified estimated impact of the implemented major policy for the industrial processes (Act No. 414/2012 Coll. on emissions trading and its amendments) is 290.10 kt CO_2 eq for 2020 and 238.06 kt CO_2 eq for 2030.

58. **Agriculture**. Emissions from the agriculture sector were estimated to be 3,014.46 kt CO_2 eq in 2015. This corresponds to a 54.2 per cent decrease in emissions compared with the base year and a 1.1 per cent decrease compared with 2014. Slovakia did not provide the quantified estimated impact of the implemented measures in the sector. However, some estimates are provided for the planned measures under the Ordinance of the Government of the Slovak Republic No. 342/2014 Coll. on laying down the rules for granting agricultural aid in respect of the direct payments schemes. Thus, the expected mitigation impacts of the new animal feeding policy, improved treatment of soil and new manure management practices are 143.81, 44.70 and 20.26 kt CO_2 eq, respectively, in 2020. Another reported measure is the EU nitrates directive, which protects water quality by preventing nitrates from agricultural sources polluting ground- and surface water by promoting good farming practices.

59. **LULUCF**. Slovakia reported on its PaMs within the LULUCF sector, which include the Forest Action Plan, the Rural Development Programme for the period 2014–2020, the Forestry Measure within the Rural Development Policy and LULUCF accounting. The actions within these PaMs include promotion of forest biomass for energy generation, EU compliance with UNFCCC and Kyoto Protocol obligations, protection of EU forests, sustainable management of forests and collection of reliable data by robust accounting and reporting in a standardized manner.

60. **Waste management**. Emissions from the waste sector were estimated to be 1,524.67 kt CO_2 eq in 2015, which corresponded to a contribution of 3.7 per cent of total GHG emissions. The PaMs implemented within the sector include Act No. 79/2015 Coll. on waste and amendments to certain acts, which focuses on packaging and recycling, limits waste disposal to permitted managed sites, bans the disposal of garden waste and requires the separate collection of kitchen waste. The Water Plan for the period 2009–2015 focuses on the need for the reduction of organic pollution of surface water, reconstruction and development of wastewater treatment plants and development of sewer systems in municipalities. The Strategy on the Reduction of the Biodegradable Waste Deposition to Landfills aims to increase the separation of recyclables and composting, while Act No. 309/2009 Coll. on the support of renewable sources of energy and highly effective cogeneration as amended regulates the use of landfill gas and biogas from wastewater treatment. Slovakia did not estimate the impact of any of the PaMs in the waste sector (see table 7).

(d) Minimization of adverse impacts in accordance with Article 2 and Article 3, paragraph 14, of the Kyoto Protocol

61. In its NC7 Slovakia provided information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change and effects on international trade and social, environmental and economic impacts on other Parties, especially developing country Parties. The information is included in section 4.3.3.3 of the NC and covers the legal background and the adopted legislative measures. Slovakia discusses the consequences of its fiscal policy instruments for fuels, as well as the biofuel policy and GHG reduction policy. In chapter 7 of the NC7 (on provision of financial, technological and capacity-building support to developing countries), the Party provided information on programmes that aim to minimize the adverse effects of climate change on developing countries.

62. Further information on how Slovakia strives to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol in such a way as to minimize adverse social,

environmental and economic impacts on developing country Parties was reported in the 2016 and 2017 annual inventory submissions. Slovakia reported on the adverse effects of climate change; the minimization of effects on international trade; and the social, environmental and economic impacts on other Parties. The reporting included information on adverse social, environmental and economic impacts on developing countries of implemented measures such as fiscal policy instruments, biofuels policy and GHG reduction policies, similar to the information reported in the NC.

(e) Assessment of adherence to the reporting guidelines

63. The ERT assessed the information reported in the NC7 of Slovakia and identified issues relating to transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 8.

Table 8
Findings on policies and measures, including those in accordance with Article 2 of the Kyoto Protocol, from the review of the seventh national communication of Slovakia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement[a] specified in paragraph 17 Issue type: transparency Assessment: recommendation	The ERT noted that Slovakia implemented the recommendation in the previous review report (FCCC/IDR.6/SVK, para. 29) and organized the reporting of PaMs by sector, subdivided by GHG. However, the Party has not included supplementary table 1 as required by the UNFCCC reporting guidelines on NCs, but made a reference to the required information in CTF table 3. The ERT noted inconsistencies in the information provided in the NC7 compared with CTF table 3, particularly with regard to gases affected, status of implementation of the same PaMs and objective and/or activity affected. During the review, Slovakia explained that the inconsistencies were due to human error. The Party also mentioned that it will include table 1 in the next NC. To improve the transparency of its reporting, the ERT recommends that Slovakia, in addition to providing the information on PaMs by sector (subdivided by gas), also report table 1 in the next NC, ensuring the consistent presentation of PaMs between the textual part of the NC and the relevant tables.
2	Reporting requirement[a] specified in paragraph 21 Issue type: transparency Assessment: encouragement	In section 4.2 of its NC7, Slovakia reported on the institutional arrangements for the monitoring and evaluation of adopted policies to fulfil international obligations. However, the report does not provide a description of the way in which progress with PaMs to mitigate GHG emissions is monitored and evaluated over time. During the review, Slovakia explained that a National System for Policies and Measures and Projections was put in place to periodically assess and monitor progress in the implementation of mitigation actions and their impacts. This national system was approved by Resolution No. 157/2014 in April 2014. Several government ministries together with their relevant expert institutions are key actors in the National System for Policies and Measures and Projections. Each year, the Ministry of Environment of the Slovak Republic, through the Expert Group for the Low-Carbon Strategy, asks for information on PaMs that have a direct or indirect impact on GHG emissions from different ministries and relevant agencies. Screening and assessment of proposed PaMs is done, and those with a quantifiable and significant impact on GHG emission reduction or energy consumption in the relevant sectors are selected. Selected PaMs are further used for model application in projections assessment. The ERT encourages Slovakia to improve the transparency of its reporting by providing in the next NC a description of the way the progress of PaMs to mitigate GHG emissions is monitored and evaluated over time.

3	Reporting requirement[a] specified in paragraph 23 Issue type: transparency Assessment: encouragement	Slovakia provided a description of each PaM and included a quantitative estimate of the impacts of some of the PaMs in table 3 of the BR referenced in the NC. However, Slovakia did not explain why some of the impacts were not quantified, although it did mention in a footnote to CTF table 3 that a positive effect on emission reduction is expected. During the review, Slovakia explained that it could not quantify some impacts because of a lack of indicators or parameters for PaMs that could be used for estimating emission reductions for the particular PaMs. Therefore, any expert estimate would have a high level of uncertainty. The ERT therefore encourages Slovakia to improve the transparency of its reporting by trying to provide the estimated impact of the PaMs for each individual PaM and year or to provide the relevant explanations as to why this is not possible, as provided during the review process.
4	Reporting requirement[a] specified in paragraph 24 Issue type: completeness Assessment: encouragement	Slovakia provided information about the non-GHG mitigation benefits of PaMs and information on how the policy or measure interacts with other PaMs at the national level. However, Slovakia did not provide information about the costs of PaMs. During the review, Slovakia explained that it does not have and cannot provide an economic analysis and the cost of individual PaMs. The ERT encourages Slovakia to improve the completeness of its reporting by including in the next NC the cost of PaMs or by providing the relevant explanations of why information about the costs of PaMs could not be provided.
5	Reporting requirement[a] specified in paragraph 25 Issue type: transparency Assessment: recommendation	In the NC7, Slovakia provided comprehensive information on the expected trends in emissions due to the implemented measures in the various sectors. However, the Party did not provide specific information on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention. During the review, Slovakia explained that any reported PaM in the NC7 that has not expired will also be effective over the long term, as it will have a beneficial impact on reducing GHG emissions. To improve the transparency of its reporting, the ERT reiterates the recommendation made in the previous review report (FCCC/IDR.6/SVK, para. 106(b)(iv)) that Slovakia provide more detailed information in its next NC on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals, consistent with the objective of the Convention.
6	Reporting requirement[b] specified in paragraph 35 Issue type: transparency Assessment: recommendation	Slovakia did not include in its NC7 information recommended in the previous review report (FCCC/IDR.6/SVK, para. 52) to explain why IMO decisions are not relevant to Slovakia because of national circumstances. During the review, Slovakia reported that it submitted in December 2015 to the European Commission a request for derogation under Article 20(5) of EU regulation 2015/757 of the European Parliament and of the Council of 29 April 2015 on the monitoring, reporting and verification of CO_2 emissions from maritime transport, and amending directive 2009/16/EC, because Slovakia does not have direct access to the sea and has no ships sailing under its flag that fall within the scope of this regulation. In order to enhance the transparency of its reporting, the ERT reiterates the previous recommendation (FCCC/IDR.6/SVK, para. 52) that Slovakia provide an explanation in its next NC as to why IMO decisions are not relevant to it because of its national circumstances.

Note: The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

[a] Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs.

[b] Paragraph number listed under reporting requirement refers to the relevant paragraph of the reporting guidelines for supplementary information.

C. Projections and the total effect of policies and measures, including information on supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol

1. Projections overview, methodology and results

(a) Technical assessment of the reported information

64. Slovakia reported updated projections for 2020 and 2030 relative to actual inventory data for 2014 under the WEM scenario. The WEM scenario reported by Slovakia includes implemented and adopted PaMs until 31 December 2016.

65. In addition to the WEM scenario, Slovakia reported the WAM and WOM scenarios. The WAM scenario includes planned PaMs (PaMs not adopted before 1 January 2017), while the WOM scenario excludes all PaMs implemented, adopted or planned after 1 January 2015. Slovakia provided a definition of its scenarios, explaining that its WEM scenario includes policies such as the EU ETS, the ESD, the National Renewable Energy Action Plan and the Energy Efficiency Action Plan for the period 2014–2016 with an outlook towards 2020 (adopted in July 2014), while its WAM scenario includes measures from the Energy Efficiency Action Plan for the period 2017–2019 with an outlook towards 2020 (adopted in April 2017), aimed at improving the thermal performance of family house buildings, residential buildings, public buildings and industry. The definitions indicate that the scenarios were prepared according to the UNFCCC reporting guidelines on NCs.

66. The projections are presented on a sectoral basis using the same sectoral categories as those used in the reporting on mitigation actions and on a gas-by-gas basis for CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 for 2014–2040. The projections are also provided in an aggregated format for each sector as well as for a Party total using GWP values from the IPCC Fourth Assessment Report.

67. Slovakia did not report emission projections for indirect GHGs such as carbon monoxide, nitrogen oxides, non-methane volatile organic compounds or sulfur oxides.

68. Emission projections related to fuel sold to ships and aircraft engaged in international transport were reported separately and were not included in the totals. Slovakia reported on factors and activities affecting emissions for each sector.

(b) Methodology, assumptions and changes since the previous submission

69. The methodology used for preparing the projections is identical to that used for preparing the emission projections for the NC6. Slovakia used a top-down approach in determining its emission projections, and the models used to generate them include the MESSAGE[10] model, which was used for stationary emissions sources, and the TREMOVE[11] model, which was used for the transport sector, in combination with the COPERT[12] model, used for individual types of vehicle in road transport. In its NC7, Slovakia explained that, in addition to modelling tools, it also used expert judgment (transport) and expert software tools (Excel-based tools) for modelling emission projections for the IPPU, agriculture, LULUCF and waste sectors.

70. To prepare its projections, Slovakia relied on the following key underlying assumptions for the change between 2015 and 2040: population growth of 2.3 per cent, energy price growth for international oil of 54.1 per cent, international coal price growth of 78.9 per cent and international gas price growth of 49.2 per cent, GDP growth of 66.6 per cent and EU ETS carbon price growth of 833.3 per cent (from EUR 4.5 to 42/t CO_2). These variables and assumptions were reported in table 5.1 for 2015–2040. The assumptions were updated on the basis of the most recent economic developments known when preparing the

[10] See http://www.iiasa.ac.at/web/home/research/researchPrograms/Energy/MESSAGE.en.html and http://www.iiasa.ac.at/publication/more_RR-81-031.php.

[11] See http://www.tmleuven.be/methode/tremove/home.htm.

[12] See http://emisia.com/products/copert/versions.

projections and are in agreement with *EU Reference Scenario 2016*.[13] The parameters and PaMs used under each scenario, together with the calculation model or tool, are presented for each sector or subsector.

71. Slovakia has not provided information about changes since the submission of its NC6 in the assumptions used in preparing the projection scenarios or a comparison of the projection results. In response to a question raised during the review, Slovakia provided changes in the values of some key parameters compared with the previous projections.

72. Sensitivity analyses were conducted for changes in the GDP for the WEM scenario for 2015, 2020, 2025, 2030 and 2035. Low and high GDP sensitivity analyses were run with results on GHG emissions of ±5.0 per cent for 2020 and 2030.

(c) Results of projections

73. The projected emission levels under different scenarios and information on the Kyoto Protocol targets and the quantified economy-wide emission reduction target are presented in table 9 and the figure below.

Table 9
Summary of greenhouse gas emission projections for Slovakia

	GHG emissions (kt CO_2 eq per year)	*Changes in relation to base-year[a] level (%)*	*Changes in relation to 1990 level (%)*
Kyoto Protocol base year[b]	74 271.51	NA	–0.3
Quantified emission limitation or reduction commitment under the Kyoto Protocol (2013–2020)[c]	25 283.62	NA	NA
Quantified economy-wide emission reduction target under the Convention[d]	NA	NA	NA
Inventory data 1990[e]	74 460.34	0.3	NA
Inventory data 2015[e]	41 269.49	–44.4	–44.6
WOM projections for 2020[f]	41 819.13	–43.7	–43.8
WEM projections for 2020[f]	40 335.69	–45.7	–45.8
WAM projections for 2020[f]	38 879.83	–47.7	–47.8
WOM projections for 2030[f]	42 789.99	–42.4	–42.5
WEM projections for 2030[f]	40 744.33	–45.1	–45.3
WAM projections for 2030[f]	38 647.22	–48.0	–48.1

Note: The projections are for GHG emissions without LULUCF.

[a] "Base year" in this column refers to the base year used for the targets under the Kyoto Protocol, while for the target under the Convention it refers to the base year used for that target.

[b] The Kyoto Protocol base-year level of emissions is provided in the initial review report, contained in document FCCC/IRR/2016/SVK.

[c] The Kyoto Protocol target for the second commitment period (2013–2020) is a joint target of the EU and its 28 member States and Iceland. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020. The target for non-ETS sectors is +13 per cent for Slovakia under the ESD. The value presented in this line is based on annex II to European Commission decision 2013/162/EU and as adjusted by Commission implementing decision 2013/634/EU that established the assigned amount for the EU member States and divided by eight years to calculate the annual emission level.

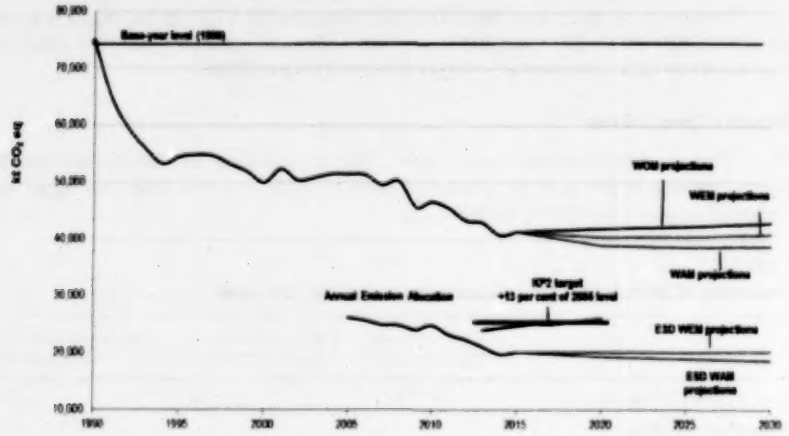
[13] See https://ec.europa.eu/energy/sites/ener/files/documents/20160713%20draft_publication_REF2016_v13.pdf.

[d] The quantified economy-wide emission reduction target under the Convention is a joint target of the EU and its 28 member States. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020.

[e] From Slovakia's BR3 CTF table 6.

[f] From Slovakia's NC7 and/or BR3.

Greenhouse gas emission projections reported by Slovakia



Sources: (1) data for 1990–2015: Slovakia's 2017 annual inventory submission, version 3; total GHG emissions excluding LULUCF; (2) data for 2016–2030: Slovakia's NC7 and BR3; total GHG emissions excluding LULUCF; (3) data for historic ESD emissions 2005–2014 and projected ESD emissions 2015–2030 provided by the Party during the review.

74. Slovakia's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 40,335.69 and 40,744.33 kt CO_2 eq, respectively, under the WEM scenario, which represents a decrease of 45.8 and 45.3 per cent, respectively, below the 1990 level. Under the WAM scenario, emissions in 2020 and 2030 are projected to be lower than those in 1990 by 47.8 and 48.1 per cent and amount to around 38,879.83 and 38,647.22 kt CO_2 eq, respectively. The 2020 projections suggest that Slovakia will continue contributing to the achievement of the EU target under the Convention.

75. Slovakia's target for non-ETS sectors is to limit its emission growth to 13 per cent above the 2005 level by 2020 (see para. 43 above). Slovakia's AEAs, which correspond to its national emission target for non-ETS sectors, change linearly from 24,023.50 kt CO_2 eq in 2013 to 25,948.87 kt CO_2 eq for 2020. According to the projections under the WEM scenario, emissions from non-ETS sectors are estimated to reach 20,152.70 kt CO_2 eq by 2020. Under the WAM scenario, Slovakia's emissions from non-ETS sectors in 2020 are projected to be 19,349.70 kt CO_2 eq. The projected level of emissions under the WEM and WAM scenarios is 22.3 and 25.4 per cent, respectively, below the AEAs for 2020. The ERT noted that this suggests that Slovakia expects to meet its target under the WEM scenario.

76. Slovakia presented the WEM and WAM scenarios by sector for 2020 and 2030, as summarized in table 10.

Table 10
Summary of greenhouse gas emission projections for Slovakia presented by sector

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2020		*2030*		*1990–2020*		*1990–2030*	
Sector	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
Energy (not including transport)	49 843.89	19 950.41	18 648.88	19 384.19	18 522.13	–60.0	–62.6	–61.1	–62.8
Transport	6 823.77	7 008.74	7 152.26	7 988.09	7 170.41	2.7	4.8	17.1	5.1
Industry/industrial processes	9 813.05	8 912.07	8 823.01	9 234.04	8 988.06	–9.2	–10.1	–5.9	–8.4
Agriculture	6 587.01	2 976.74	2 767.97	2 672.93	2 501.54	–54.8	–58.0	–59.4	–62.0
LULUCF	–8 991.25	–5 265.26	–5 265.26	–4 530.45	–4 530.45	–41.4	–41.4	–49.6	–49.6
Waste	1 392.62	1 487.72	1 487.72	1 465.09	1 465.09	6.8	6.8	5.2	5.2
Other (specify)	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total GHG emissions without LULUCF	**74 460.34**	**40 335.68**	**38 879.84**	**40 744.33**	**38 647.23**	**–45.8**	**–47.8**	**–45.3**	**–48.1**

Source: Slovakia's BR3 CTF table 6. The ERT calculated the values for energy (not including transport), because the value reported by Slovakia included transport under energy.

77. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions are expected to occur in the energy (not including transport) and agriculture sectors, amounting to projected reductions of 29,893.48 kt CO_2 eq (60.0 per cent) and 3,610.27 kt CO_2 eq (54.8 per cent) between 1990 and 2020. The pattern of projected emissions reported for 2030 under the same scenario remains the same for the energy sector (a decrease of 61.1 per cent) and does not change much in the case of agriculture (a decrease of 59.4 per cent), indicating a trend for further decreasing emissions compared with the base year. The emission reductions in the energy sector are due to the decarbonization of energy industries (increase in the share of RES in electricity generation) and further improvements in energy efficiency of final consumption. Projections of GHG emissions in the transport sector highlight an expected increase in transportation needs, for both passengers and freight, but with a higher increase in privately owned cars.[14] In agriculture, emission reductions are due to measures that aim at better manure management and improved timing in the fertilization of crops.

78. If additional measures are considered (i.e. under the WAM scenario), the patterns of emission reductions by 2020 presented by sector and by gas slightly change owing to the implementation of the additional PaMs, especially in the energy sector (e.g. improved energy efficiency across the economy). There are no changes for the LULUCF and waste sectors between the scenarios.

79. Slovakia presented the WEM and WAM scenarios by gas for 2020 and 2030, as summarized in table 11.

[14] See https://ec.europa.eu/energy/sites/ener/files/documents/20160713%20draft_publication_REF2016_v13.pdf, p 192.

Table 11
Summary of greenhouse gas emission projections for Slovakia presented by gas

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2020		*2030*		*1990–2020*		*1990–2030*	
Gas	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
CO_2	61 935.05	32 808.43	31 587.48	33 879.52	32 049.34	–47.0	–49.0	–45.3	–48.3
CH_4	7 198.63	4 475.94	4 317.72	4 232.21	4 093.24	–37.8	–40.0	–41.2	–43.1
N_2O	5 011.74	2 388.74	2 312.05	2 283.27	2 218.68	–52.3	–53.9	–54.4	–55.7
HFCs	0.00	637.69	637.69	322.46	264.43	–	–	–	–
PFCs	314.86	8.14	8.14	9.23	9.23	–97.4	–97.4	–97.1	–97.1
SF_6	0.06	16.75	16.75	17.64	12.30	27 816.7	27 816.7	29 300.0	20 400.0
NF_3	0.00	0.00	0.00	0.00	0.00	–	–	–	–
Total GHG emissions without LULUCF	**74 460.34**	**40 335.69**	**38 879.83**	**40 744.33**	**38 647.22**	**–45.8**	**–47.8**	**–45.3**	**–48.1**

Source: Slovakia's BR3 CTF tables 6(a) and 6(c).

80. For 2020 the most significant reductions are projected for CO_2, CH_4 and N_2O emissions: 29,126.62 kt CO_2 eq (47.0 per cent), 2,722.69 kt CO_2 eq (37.8 per cent) and 2,623.00 kt CO_2 eq (52.3 per cent), respectively, between 1990 and 2020. In the case of HFCs and SF_6, although the amount of CO_2 eq emissions is not significant, the ERT has noted a significant increase (from negligible values in 1990 to dozens or hundreds of tonnes in 2020), whereas there is a decreasing trend for PFCs (by 97.4 and 97.1 per cent for 2020 and 2030, respectively).

81. For 2030 the most significant reductions are also projected for CO_2, CH_4 and N_2O emissions: 28,055.53 kt CO_2 eq (45.3 per cent), 2,966.42 kt CO_2 eq (41.2 per cent) and 2,728.69 kt CO_2 eq (54.4 per cent), respectively, between 1990 and 2030. Regarding the use of F-gases, the same trend as for 2020 appears in the 2030 projections.

82. If additional measures are considered (i.e. for the WAM scenario), the patterns of emission reductions by 2020 presented by sector and by gas slightly change, allowing the achievement of a total emission reduction of about 2 per cent higher than for the WEM scenario; this is mainly due to the longer period of application of the measures, especially in the energy sector (i.e. Energy Efficiency Action Plan).

83. The ERT noted that the emission projections of the Party for all scenarios for 2020 and 2030 are expected to be lower than those presented in its NC6 (e.g. 40,335.68 kt CO_2 eq versus 44,492.44 kt CO_2 eq in 2020 and 40,744.33 kt CO_2 eq versus 45,290.88 kt CO_2 eq in 2030 for the WEM scenario). The changes are not discussed by the Party in the NC and are considered to be driven by the updated assumptions and new measures used in the projections.

(d) Assessment of adherence to the reporting guidelines

84. The ERT assessed the information reported in the NC7 of Slovakia and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 12.

Table 12
Findings on greenhouse gas emission projections reported in the seventh national communication of Slovakia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 35 Issue type: completeness Assessment: encouragement	The ERT noted that projections shall be presented for CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 (treating PFCs and HFCs collectively in each case), and Parties may provide projections of the indirect GHGs carbon monoxide, nitrogen oxides, non-methane volatile organic compounds and sulfur oxides. Slovakia did not provide projections of the indirect GHGs in its submission. Noting the complete submission regarding the reporting of the direct GHG emissions, the ERT encourages Slovakia to further improve the completeness of its reporting by including in its next NC projections of the indirect GHGs carbon monoxide, nitrogen oxides, non-methane volatile organic compounds and sulfur oxides.
2	Reporting requirement specified in paragraph 43 Issue: transparency Assessment: encouragement	The ERT noted that Slovakia reported on the models or approaches used for preparing projections in the different scenarios. However, some of the elements required, such as type of model, strengths and weaknesses of the model or approach used, and how the model or approach used accounts for any overlap or synergies that may exist between different PaMs, were not presented. During the review, Slovakia submitted supplementary information and explanations, references to some of the models used and information on how it accounts for overlaps and synergies. The ERT took note of the information provided and encourages Slovakia to improve the transparency of its reporting by including in its next NC the information required by paragraph 43 of the UNFCCC reporting guidelines on NCs, particularly by providing details on the type of model used, strengths and weaknesses of the model or approach used and how the model or approach used accounts for any overlap or synergies that may exist between different PaMs.
3	Reporting requirement specified in paragraph 45 Issue type: transparency Assessment: encouragement	Slovakia reported on assumptions, methods employed and projections in the current NC. The NC mentions that updated figures from macroeconomic and demographic data forecasts were applied; however, the ERT noted that the differences between key indicators used in the projections, methods applied and results of the projections compared with the previous submission are not presented. During the review, Slovakia explained that there were no significant changes in methods and models and the data sources of input data between the current and previous NC, and the differences in the reported projections for 2020 and 2030 are mainly caused by the new data for new parameters and new measures used. The ERT took note of the information provided and encourages Slovakia to improve the transparency of its reporting by including in its next NC the main differences in the assumptions, methods employed and results between projections in the current NC and those in earlier NCs.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
4	Reporting requirement specified in paragraph 48 Issue: transparency Assessment: recommendation	According to the UNFCCC reporting guidelines on NCs, Parties shall present relevant information on factors and activities for each sector to provide the reader with an understanding of emission trends for 1990–2020. The ERT noted that Slovakia reported key underlying assumptions and values of variables such as GDP growth, population growth, tax levels and international fuel prices in table 5.1 of the NC and included information on other parameters such as final energy demand per sector and number of passengers per kilometre. However, the historical evolution (1990–2014) of these variables was not presented in the NC7. During the review, Slovakia submitted supplementary information, but it did not cover this requirement. The ERT took note of the information provided and recommends that Slovakia improve the transparency of its reporting and provide the reader with an understanding of emission trends for 1990–2020 by presenting relevant information on factors and activities for each sector, particularly by providing details using the relevant textual and tabular information on the historical evolution of its key underlying assumptions and values of variables such as GDP growth, population growth and energy demand in the next NC.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

2. Assessment of the total effect of policies and measures

(a) Technical assessment of the reported information

85. In the NC7 Slovakia did not present the estimated and expected total effect of implemented and adopted PaMs or an estimate of the total effect of its PaMs, in accordance with the WEM scenario, compared with a situation without such PaMs. Also, Slovakia did not provide in its NC7 the above-mentioned effect in terms of GHG emissions avoided or sequestered, by gas (on a CO_2 eq basis), despite the fact that the Party provides the estimates per sector and gas on a CO_2 eq basis for the WOM, WEM and WAM scenarios within its submission.

86. In response to a question raised by the ERT during the review, Slovakia explained that the total estimated effect of its adopted and implemented PaMs is 1,483.44 kt CO_2 eq in 2020 and 2,045.64 kt CO_2 eq in 2030 based on the difference between the WOM and the WEM scenario. According to the information reported in the NC7, PaMs implemented in the energy sector (without transport) will deliver the largest emission reductions (843.46 kt CO_2 eq), followed by PaMs implemented in the IPPU sector (349.96 kt CO_2 eq) and the transport sector (290.03 kt CO_2 eq), according to the WEM scenario for 2020. Table 13 provides an overview of the total effect of PaMs as reported by Slovakia.

Table 13
Projected effects of Slovakia's planned, implemented and adopted policies and measures by 2020 and 2030

	2020		*2030*	
Sector	*Effect of implemented and adopted measures (kt CO_2 eq)*	*Effect of planned measures (kt CO_2 eq)*	*Effect of implemented and adopted measures (kt CO_2 eq)*	*Effect of planned measures (kt CO_2 eq)*
Energy (without transport)	843.46	1301.53	980.96	862.06
Transport	290.03	–143.52	598.61	817.68
Industrial processes	349.96	89.06	466.07	245.98
Agriculture	0.00	208.77	0.00	171.39
Land-use change and forestry	0.00	0.00	0.00	0.00
Waste management	0.00	0.00	0.00	0.00
Total	**1 483.44**	**1 455.85**	**2 045.64**	**2 097.11**

Source: Information provided during the review.
Note: The total effect of implemented and adopted PaMs is defined as the difference between the WOM and the WEM scenario and the total effect of planned PaMs is defined as the difference between the WEM and the WAM scenario.

(b) Assessment of adherence to the reporting guidelines

87. The ERT assessed the information reported in the NC7 of Slovakia and identified issues relating to completeness and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 14.

Table 14
Findings on the assessment of the total effect of policies and measures from the review of the seventh national communication of Slovakia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 39	Slovakia reported on PaMs included in the different scenarios; however, the ERT noted that the estimated and expected total effect of implemented and adopted PaMs is not reported in the submission.
	Issue type: completeness	During the review, the Party presented the estimated and expected total effect of PaMs, for each scenario, for 2020 and 2030.
	Assessment: recommendation	The ERT recommends that Slovakia improve the completeness of its reporting by including in its next NC the estimated and expected total effect of implemented and adopted PaMs, together with a description of the approach used.
2	Reporting requirement specified in paragraph 40	The Party reported on PaMs included in the different scenarios; however, the ERT noted that Slovakia did not report GHG emissions avoided or sequestered, by gas (on a CO_2 eq basis).
	Issue type: completeness	During the review, the supplementary information provided did not answer the reporting requirement.
	Assessment: recommendation	The ERT reiterates the recommendation made in the previous review report (FCCC/IDR6/SVK, para. 73) that Slovakia include in its next NC the total effect of PaMs in terms of GHGs avoided or sequestered, by gas (on a CO_2 eq basis), to improve the completeness of its reporting.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

3. Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol

(a) Technical assessment of the reported information

88. In the NC7 Slovakia provided information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action, although it did not elaborate on supplementarity as such. The ERT noted that Slovakia does not plan to use the market-based mechanisms to meet its Kyoto Protocol target.

89. In the section on supplementarity in its NC7, Slovakia provided information on its involvement in joint implementation projects as a host country, as well as quantitative information on the Kyoto Protocol mechanisms for the first commitment period. The Party also reported that in December 2009 Slovakia formally approved the establishment of a green investment scheme as an instrument to support determining the reduction of GHG emissions of domestic projects on the basis of the revenue from selling surplus assigned amount units under international emissions trading. However, the ERT noted that the encouragement to Slovakia in the previous review report[15] to include in its next NC the information provided during the review on the elements of the scheme's operation, in order to increase the transparency of the information reported, has not been followed.

(b) Assessment of adherence to the reporting guidelines

90. The ERT assessed the information reported in the NC7 of Slovakia and recognized that the reporting is complete and transparent. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

D. Provision of financial and technological support to developing country Parties, including information under Articles 10 and 11 of the Kyoto Protocol

91. Slovakia is not an Annex II Party and is therefore not obliged to report its fulfilment of obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention. However, the Party provided information in the NC7 on its provision of financial, technology transfer and capacity-building support to developing country Parties. The ERT commends Slovakia for reporting this information and suggests that it continue to do so in future NCs.

92. Slovakia has provided detailed information on the assistance that it has made available to developing country Parties that are particularly vulnerable to the adverse effects of climate change. Financed projects include climate change adaptation, GHG mitigation, and support and capacity-building projects regarding water, waste management, agriculture, food security, afforestation and renewable energy. The total climate-specific financial contributions provided by Slovakia through multilateral channels in 2015 and 2016 were USD 2,592,606 and USD 3,526,032, respectively, mainly in the form of bilateral cooperation. All support was channelled through official development assistance in accordance with the methodology of the Development Assistance Committee of the Organisation for Economic Co-operation and Development. Slovakia has also developed legislative and strategic frameworks as well as monitoring and evaluation systems for providing effective development cooperation.

93. In 2014–2016 Slovakia supported 52 capacity-building projects among developing countries in which capacity-building was the principal objective.

94. The NC7 reported that in 2014 Slovakia financially supported one technology transfer project; in 2015 and 2016 it did not support any technology transfer projects.

95. Slovakia indicated that it did not make a direct contribution to the Adaptation Fund, established in accordance with decision 10/CP.7.

[15] FCCC/IDR.6/SVK, paragraph 79.

E. Vulnerability assessment, climate change impacts and adaptation measures

1. Technical assessment of the reported information

96. In the NC7 Slovakia provided the required information on the expected impacts of climate change in the country; the adaptation policies covering regional, sectoral and cross-sectoral vulnerabilities and considerations; and an outline of the action taken to implement Article 4, paragraph 1(b), of the Convention with regard to adaptation. Slovakia provided a description of climate change vulnerability and impacts on agriculture, forest management, biodiversity, public health, hydrology and water management, tourism, transport and energy and highlighted the adaptation response actions taken and planned at different levels of government. The NC7 describes changes to, and the variability of, climatic parameters for the period 1881–2016 based on statistical data provided by meteorological stations and using various statistical methods. Results demonstrate a significant increase (2.0 °C in the 136-year period) in mean annual air temperature and an insignificant increase (about 0.8 per cent in 136 years) in the annual precipitation. Downscaled for Slovakia's territory, new global and regional circulation models[16] were used for constructing future (by 2100) climate scenarios in the preparation of the NC7. Different climate change scenarios were prepared assuming an increase of monthly and annual temperatures in Slovakia by 1.5 to 4.7 °C, respectively, in the period 2051–2100 compared with 1960–1990. For the same period, predicted precipitation changed from a decrease of 33 per cent in summer to an increase of 19 per cent in winter. While temperature scenarios are very close for all Slovak localities, precipitation scenarios exhibit some regional differences between northern and southern parts of the country. Slovakia provided information on the future scenarios of different climatic parameters and on various approaches and methodologies used for its vulnerability assessments.

97. Slovakia reported that most adaptation measures under the responsibility of the Ministry of Environment (biodiversity, hydrology and water management) are continuously implemented. Measures on drought management are to be strengthened in the future, and measures for public health, tourism and energy are to be implemented.

98. Impetus has been given to addressing adaptation matters with the adoption of the first version of the Adaptation Strategy of the Slovak Republic on Adverse Impacts of Climate Change (approved in 2014), which is a framework document for adaptation processes in Slovakia. The resolution approving the strategy prescribes a compulsory update of the strategy that should take into account the latest scientific knowledge on climate change. The adaptation expert group under the High-Level Committee for the Coordination of Climate Change Policy had responsibility for the updated version of the strategy, which has to be submitted to the Slovak Government for approval in 2018. The strategy provides direction to government agencies on enhancing preparedness for climate change and proposes proactive adaptation measures, identifies opportunities for adaptation and creates an institutional framework that would enable the efficient and cost-effective adaptation to adverse climate change effects. Key sectors considered in the strategy are agriculture, forests and biodiversity, water resources, health, tourism, transport and energy. Extreme temperatures and droughts are identified as the main risks having a significant impact on the listed sectors of the economy and ecosystems.

99. Table 15 summarizes the information on vulnerability and adaptation to climate change presented in the NC7 of Slovakia.

[16] CGCM3.1 (Canada) and ECHAM5 (Germany), RCMs – RACMO (Netherlands – KNMI) and REMO (Germany – MPI).

Table 15
Summary of information on vulnerability and adaptation to climate change reported by Slovakia

Vulnerable area	*Examples comments adaptation measures reported*
Agriculture	*Vulnerability*: Increase in aridity of maize production areas; increased soil degradation; spread of pests; diseases of agriculture plants, trees and animals *Adaptation*: Change varieties of crops; ensure efficient irrigation systems; apply soil rehabilitation and protection measures; apply measures in farming to minimize temperature stress on livestock
Forest management	*Vulnerability*: Appearance of new pests and diseases; persisting decline of secondary Norway spruce forests; increased severity of windstorms and risk of forest fires; increased frequency and intensity of droughts and hot spells with a negative impact on forest health and productivity *Adaptation*: Change tree species composition; increase the share of drought-tolerant species; increase stand diversity; combine natural and artificial regeneration; shorten the rotation period of tree species with high susceptibility to insects and diseases; optimize forest road networks
Biodiversity	*Vulnerability*: Invasions of some species of insects as agricultural pests; invasions of vector diseases threatening human health; decrease in biodiversity (the most vulnerable are sensitive ecosystems such as pine groves grown in the mountains, swamp ecosystems and agricultural ecosystems developed in foothills and mountains as well as aqua-systems) *Adaptation*: Introduce phytopathological measures in legislation and in practice; conserve the original species spectrum of biodiversity in Slovakia; prevent drying of wetlands and water biotopes; apply ecosystem-based adaptation measures
Public health	*Vulnerability*: Extension of the pollen period and its dissemination to new geomorphologic areas; deteriorating health conditions of people with cardiovascular and respiratory diseases and asthma; premature deaths; dehydration due to extreme weather (increasing heatwaves, cold waves and floods) *Adaptation*: Monitor pollen season and bathing waters to assess their quality and disseminate information to the public; raise awareness and disseminate information on potential risks and preventive measures
Hydrology and water management	*Vulnerability*: Increase in the occurrence of droughts and floods leading to a change in the hydrologic cycle and to a decrease in water resources, in particular in the south and east; decrease in the electric energy production from big water power stations *Adaptation*: Develop effective water management; redistribute run-off between north and south; identify prospective and supplementary resources for water supply and their use
Tourism	*Vulnerability*: Restriction of water tourism in the south; less and irregular snow cover and shorter winter season in lower altitudes *Adaptation*: Reorient highly vulnerable winter centres to other activities; diversify tourism options by season
Transport	*Vulnerability*: Increased precipitation and in particular solid precipitation (snow) in mountainous regions (have impact on road transport); hazardous meteorological phenomena (have impact on air transport); decrease in precipitation totals (has impact on inland navigation) *Adaptation*: Support the development of railway transportation; improve quality of roads and corridors and construction of tunnels
Energy	*Vulnerability*: Increased high-speed winds and strong thunderstorms; increased energy demand in summer season; decreased river run-off *Adaptation*: Increase power plant safety

100. Slovakia provided information on bilateral cooperation with developing countries on adaptation, such as study programmes on melioration, environmental management, water construction, water economy, capacity-building in agriculture and food security, and ensuring water quality and management in countries such as Afghanistan, Armenia, Ecuador and Kenya. The ERT noted that this information is not specifically covered in the chapter on vulnerability and adaptation but in chapter 7 of the NC (on provision of financial, technological and capacity-building support to developing countries). However,

the ERT concluded that the NC does not provide sufficient information on activities under Article 4, paragraph 1(e), on cooperation in adaptation planning.

2. Assessment of adherence to the reporting guidelines

101. The ERT assessed the information reported in the NC7 of Slovakia and identified an issue relating to transparency and adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table 16.

Table 16
Findings on the vulnerability assessment, climate change impacts and adaptation measures from the review of the seventh national communication of Slovakia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 49 Issue type: transparency Assessment: recommendation	In its NC7, in the chapter on vulnerability and adaptation, Slovakia did not report how it cooperates in preparing for adaptation to the impacts of climate change and develops and elaborates appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods (FCCC/IDR.6/SVK, para. 88). During the review, Slovakia clarified that such activities are provided in general tables on capacity-building in chapter 7. The ERT noted that tables from chapter 7 of the NC are improved and give more information about the cooperation on adaptation activities compared with the NC6. However, the information provided in the tables in chapter 7 of the NC7 are not sufficient to identify which listed projects could be considered as activities under Article 4, paragraph 1(e). The ERT recommends that Slovakia improve the transparency of its reporting on action being taken to cooperate with developing countries in preparing for adaptation by elaborating on specific adaptation projects and activities and explaining how they relate to the implementation of Article 4, paragraph 1(e), of the Convention in its next NC. In addition, the ERT notes that a cross reference to the information on adaptation in chapter 7 of the NC in the chapter on vulnerability and adaptation would further improve the transparency of reporting within the NC.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

F. Research and systematic observation

1. Technical assessment of the reported information

102. Slovakia provided information on its general policy and funding relating to research, systematic observation and both domestic and international activities, including contributions to the World Climate Programme, the International Geosphere–Biosphere Programme, the Global Climate Observing System and the IPCC. Slovakia did not provide information on the identification of opportunities for and barriers to the free and open international exchange of data and information or on action taken to overcome such barriers.

103. Slovakia has implemented and planned international and domestic policies and programmes on climate change research, systematic observation and climate modelling that aim to advance capabilities to predict and observe the physical, chemical, biological and human components of the Earth's system over space and time. The Party reports a large number of projects, some of which deal not with climate change issues, but with physical, chemical and biological processes connected with impacts comparable to climate change. The list of projects[17] includes a number in climatology, forestry, agriculture, and hydrology

[17] Some of the listed projects include "Interaction between climatic factors and a mountainous environment"; "Deglaciation and postglacial climatic evolution recorded in the lake deposits of the

and water management. The ERT noted established arrangements for financial support in these areas and the efforts in relation to research and systematic observation demonstrated by Slovakia. The ERT notes that including in the next NC any additional information on the steps taken to integrate research findings into adaptation planning would further improve the transparency of reporting.

104. In terms of activities related to systematic observation, Slovakia reported on national and international programmes and support for ground- and space-based climate observing systems, including satellite and non-satellite climate observation. In response to a recommendation made in the previous review report,[18] in the NC7 Slovakia provided summary information on its Global Climate Observing System activities. Slovakia has a long tradition of hydrological, meteorological and climatological observation. Observations and measurements by the hydrological and meteorological networks, as well as air quality measurements in Slovakia, are guaranteed by Act No. 201/2009 Coll. on the State Hydrological Service and the State Meteorological Service. These measurements and observations are carried out by SHMU in Bratislava, which is also responsible for gathering, processing and administration of hydrological and meteorological data and information. Slovakia reported that measured and observed data, as well as data from outputs of research projects, are communicated to world data centres for internationally handled projects.

105. The NC7 reflected actions taken to support capacity-building and the establishment and maintenance of observation systems and related data and monitoring systems in developing countries. Namely, chapter 7 of the NC7 provided information on study tours and funding provided by the country for scientific projects from developing countries working on global climate change research. However, the ERT noted that the information is not specific on the support for capacity-building related to observation and monitoring systems in developing countries.

2. Assessment of adherence to the reporting guidelines

106. The ERT assessed the information reported in the NC7 of Slovakia and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 17.

High Tatra Mountains"; "Palaeoclimate record and Miocene climate variability in Central and Eastern Paratethys"; "European mixed forests. Integrating Scientific Knowledge in Sustainable Forest Management"; "New possibilities for the use of drainage canal systems taking into account the protection and use of landscape"; "Effective irrigation management as a device of changing climate adaptation"; "Innovative phenomic tools in the assessment of wheat genetic resources towards improved performance and adaptability to climate extremes"; "Distribution potential of different fungal trophic groups in Europe"; and "A novel method for low-level windshear alert calculation from data measured by LIDAR".

[18] FCCC/IDR.6/SVK, paragraph 90.

Table 17
Findings on research and systematic observation from the review of the seventh national communication of Slovakia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 58 Issue type: transparency Assessment: recommendation	In its NC7 Slovakia listed some capacity-building projects in chapter 7. However, the information provided is not specific on the actions taken by the country to support capacity-building activities in developing countries related to the participation in the Global Climate Observing System. During the review, Slovakia explained that the calibration laboratory of SHMU is a Regional Instrument Centre of the World Meteorological Organization providing inter-laboratory calibration services to the Central and Eastern European region and capacity-building outside the region. A project in Oman is given as an example of such a capacity-building activity. The institute is the leading partner in a project supported by Slovakaid resources called "Monitoring and assessment of the impact of droughts on water resources and their effective using in Georgia". The ERT recommends that Slovakia improve the transparency of its reporting by providing in its next NC specific information on actions taken to support the capacity-building actions related to systematic observation of developing countries.
2	Reporting requirement specified in paragraph 62 Issue type: completeness Assessment: encouragement	Slovakia did not provide information on barriers to the free and open international exchange of data and information. During the review, Slovakia explained that the barriers to the free and open international exchange of data are mainly the different data policy and commercial activities of national meteorological services of World Meteorological Organization members. The data and products necessary for the provision of services mainly in support of the protection of life and property are provided on a free and unrestricted basis, while additional data are exchanged using bilateral agreements. Data for research and education are exchanged under research and education licences. The ERT encourages Slovakia to improve the completeness of its reporting by providing in its next NC information on the opportunities for and barriers to the free and open international exchange of data and information and to report on action taken to overcome barriers, if any.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

G. Education, training and public awareness

1. Technical assessment of the reported information

107. In the NC7 Slovakia provided information on its actions relating to education, training and public awareness at the domestic and international level. The Party provided information on the general policy on education; training and public awareness; primary, secondary and higher education; public information campaigns; training programmes; education materials; resource or information centres; the involvement of the public and NGOs and its participation in international activities.

108. Slovakia reported that education is a responsibility of the Ministry of Education, Science, Research and Sport of the Slovak Republic. For training and raising public awareness on climate change issues, the Slovak Environmental Agency and SHMU are key contributors. Education and information on climate change are also provided by some universities and scientific institutions, interest groups, professional organizations and NGOs. The Ministry of Environment of the Slovak Republic launched the Green Education Fund, which supports environmental education, training and the raising of public awareness. The National Strategy for Global Education for the period 2012–2016 was implemented by the Government, and defines the main issues of education focusing on global issues, including climate change. At the school level the Party has different training programmes related to climate change and among them is an innovative educational

programme conducted via the ecological footprint web portal. Slovakia also has different types of environmental competition, mainly for primary schools.

109. Media, universities and resource and information centres are broadly used for climate change training and public awareness. Climate-related activities include conferences, seminars, festivals, exhibitions and training events. At the international level, Slovakia has been a member of the European Environment Agency and the European Environment Information and Observation Network since 2001. The Party provides different types of study tour to the representatives of developing countries in agriculture, food security and water management.

110. Slovakia did not provide information in its NC7 regarding the involvement of the public and NGOs in the preparation and review process of its NCs.

2. Assessment of adherence to the reporting guidelines

111. The ERT assessed the information reported in the NC7 of Slovakia and identified an issue relating to completeness and adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table 18.

Table 18
Findings on education, training and public awareness from the review of the seventh national communication of Slovakia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 65 Issue type: completeness Assessment: encouragement	In its NC7 Slovakia did not report on the extent of public participation in the preparation or domestic review of the NC. During the review, Slovakia explained that there is not an official process of domestic public review of NCs and that neither NGOs nor civil society representatives contributed directly to drafting the NCs. However, the experts who drafted respective chapters of the NC had the opportunity to use their professional networks. In addition, the information or data present in NCs are often extracted from official documents that are elaborated with the participation of NGOs or civil society representatives. The ERT encourages Slovakia to improve the completeness of its reporting by including information on public participation in the preparation and domestic review of its NCs in its next submission, as presented during the review.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

III. Conclusions and recommendations

112. The ERT conducted a technical review of the information reported in the NC7 of Slovakia in accordance with the UNFCCC reporting guidelines on NCs. The ERT concludes that the reported information mostly adheres to the UNFCCC reporting guidelines on NCs and that the NC7 provides an overview of the national climate policy of Slovakia.

113. The information provided in the NC7 includes most of the elements of the supplementary information under Article 7 of the Kyoto Protocol, with minor exceptions for information on domestic and regional programmes and/or legislative arrangements, enforcement and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol contributes to the conservation of biodiversity and sustainable use of natural resources. Supplementary information under Article 7, paragraph 1, of the Kyoto Protocol on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol was provided by Slovakia in its 2017 annual submission.

114. Slovakia's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 44.6 per cent below its 1990

level, whereas total GHG emissions including LULUCF were 46.8 per cent below its 1990 level, in 2015. Emission decreases were driven by the transition to a market-based economy with related technological and structural changes of the economy, as well as by the reduced energy intensity for some industrial sectors, changes in the fuel mix and improved energy efficiency. The decrease in emissions can also be attributed to the impact of implemented air protection legislation and PaMs related to climate change.

115. Slovakia's main policy framework relating to energy and climate change is the implementation of the EU 2020 climate and energy package. The EU ETS was reported as one of the most effective cross-sectoral policies, covering over 51 per cent of the total emissions of Slovakia. The Party also reports on the national PaMs, such as the Energy Policy of the Slovak Republic (Regulation No. 548/2014), which is aimed at ensuring the sustainability of the energy sector by contributing to the sustainable growth of the national economy and its competitiveness; the National Renewable Energy Action Plan, aimed at increasing the share of RES in heat and electricity generation; the National Action Plan for Biomass Use, aimed at increasing the share of overall energy demand met by biomass; and the Action Plan for Energy Efficiency, aimed at increasing energy efficiency across the relevant sectors. From the mitigation actions with reported quantified impact, the individual mitigation measures with the most significant mitigation impact are the improvements of thermal performance of both residential and commercial buildings and the increase of RES in heat and electricity generation.

116. The GHG emission projections provided by Slovakia include those under the WOM, WEM and WAM scenarios. In the three scenarios, emissions are projected to be 43.8, 45.8 and 47.8 per cent below the 1990 level in 2020, respectively. On the basis of the reported information, the ERT concludes that Slovakia expects to meet its 2020 target under the WOM, WEM and WAM scenarios. According to EU decision 406/2009/EC, Slovakia's national target by 2020 for non-ETS sectors is +13 per cent compared with 2005 (a positive limit). Slovakia's AEA, which corresponds to its national emission target for non-ETS sectors, is 25,948.87 kt CO_2 eq for 2020. The projected levels of emissions under the WEM and WAM scenarios are 22.3 and 25.4 per cent below the AEAs for 2020, respectively. On the basis of the reported information, the ERT concludes that Slovakia expects to meet its target for non-ETS sectors.

117. The ERT noted that Slovakia is also on track to meet its EU commitments under the renewable energy directive and the energy efficiency directive with a share of RES of 12.9 per cent in 2015 (interim target for the year is 10 per cent) and for primary energy consumption (15.4 Mtoe in 2015) with a target of 16.4 Mtoe in 2020.

118. The NC7 contains information on the Party's use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol. Slovakia is not planning to make use of the Kyoto Protocol mechanisms to meet its Kyoto Protocol target.

119. Slovakia is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention. However, the Party continued to report on climate finance, technology transfer and capacity-building to developing countries in line with its climate finance programmes.

120. Slovakia in its NC7 provided detailed information on vulnerability and climate change impacts in different sectors, according to the requirement of Article 4, paragraph 1(b), of the Convention. According to the Climate Change Adaptation Strategy of Slovakia (being updated), focus is given to the following vulnerable sectors: agriculture, forestry, biodiversity, public health, hydrology and water management, tourism, transport and energy. The information provided in the NC related to actions taken to implement Article 4, paragraph 1(e), of the Convention regarding cooperation on adaptation planning was supplemented during the review with detailed information on relevant activities.

121. Slovakia provides information on research and systematic observation activities and programmes at both the domestic and the international level. The Party reported on its activities, projects and numerous studies in the area. Slovakia has a long tradition of hydrological, meteorological and climatological observations and local hydrological and meteorological data and study results are provided to the global research centres.

122. Information reported on education, training and public awareness is broad and covers all possible activities for different stakeholders, including primary and secondary education, and local and foreign researchers. Slovakia has produced a number of publications, periodicals and training materials, as well as organized conferences, festivals, fairs and exhibitions, to facilitate the raising of public awareness.

123. In the course of the review, the ERT formulated the following recommendations for Slovakia to improve its adherence to the UNFCCC reporting guidelines on NCs and its reporting of supplementary information under the Kyoto Protocol:[19]

(a) To improve the completeness of its reporting by:

(i) Including information on the national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and the sustainable use of natural resources (issue 1, table 6);

(ii) Providing information on the estimated and expected total effect of implemented and adopted PaMs, together with a description of the approach used (issue 1, table 14);

(iii) Reporting the total effect of PaMs in terms of GHGs avoided or sequestered by gas (on a CO_2 eq basis) (issue 2, table 14);

(b) To improve the transparency of its reporting by:

(i) Providing table 1 in the NC together with information on PaMs by sector (subdivided by gas), and ensuring internal consistency between textual parts in the NC and the relevant tables (issue 1, table 8);

(ii) Providing more detailed information on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals, consistent with the objective of the Convention (issue 5, table 8);

(iii) Providing an explanation as to why IMO decisions are not relevant to it because of its national circumstances (issue 6, table 8);

(iv) Enhancing the transparency and providing the reader with an understanding of emission trends for 1990–2020 by presenting relevant information on factors and activities for each sector, particularly by providing details in the text and in tabular format on the historical evolution of its key underlying assumptions and values of variables such as GDP growth, population growth and energy demand (issue 4, table 12);

(v) Improving its reporting on action being taken to cooperate with developing countries in preparing for adaptation by elaborating on specific adaptation projects and activities and explaining how they relate to the implementation of Article 4, paragraph 1(e), of the Convention (issue 1, table 16);

(vi) Providing specific information on actions taken to support the capacity-building actions related to systematic observation of developing countries (issue 1, table 17).

IV. Questions of implementation

124. During the review the ERT assessed the NC7, including the supplementary information provided under Article 7, paragraph 2, of the Kyoto Protocol, and reviewed the information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol with regard to timeliness, completeness, transparency and

[19] The recommendations are given in full in the relevant sections of this report.

adherence to the UNFCCC reporting guidelines on NCs. No question of implementation was raised by the ERT during the review.

Annex

Documents and information used during the review

A. Reference documents

2017 GHG inventory submission of Slovakia. Available at http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/10116.php.

BR3 of Slovakia. Available at http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/72450391_slovakia-br3-1-3br_svk.pdf.

BR3 CTF tables of Slovakia. Available at http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/72450391_slovakia-br3-1-annexi_ctf_svk_2018_v1.0.pdf.

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories". Annex to decision 24/CP.19. Available at http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf.

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications". FCCC/CP/1999/7. Available at http://unfccc.int/resource/docs/cop5/07.pdf.

"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol". Annex to decision 15/CMP.1. Available at http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf.

"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol". Annex III to decision 3/CMP.11. Available at http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf.

"Guidelines for review under Article 8 of the Kyoto Protocol". Annex to decision 22/CMP.1. Available at http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf.

"Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention". Annex to decision 13/CP.20. Available at http://unfccc.int/resource/docs/2014/cop20/eng/10a03.pdf.

NC7 of Slovakia. Available at http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/976840315_slovakia-nc7-1-7nc_svk.pdf.

Report on the individual review of the annual submission of Slovakia submitted in 2016. FCCC/ARR/2016/SVK. Available at http://unfccc.int/resource/docs/2017/arr/svk.pdf.

Report on the individual review of the annual submission of Slovakia submitted in 2017. FCCC/ARR/2017/SVK. Available at http://unfccc.int/resource/docs/2018/arr/svk.pdf.

Report on the review of the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol of Slovakia. FCCC/IRR/2016/SVK. Available at http://unfccc.int/resource/docs/2017/irr/svk.pdf.

Report on the technical review of the sixth national communication of Slovakia. FCCC/IDR.6/SVK. Available at http://unfccc.int/resource/docs/2015/idr/svk06.pdf.

Revisions to the guidelines for review under Article 8 of the Kyoto Protocol. Annex I to decision 4/CMP.11. Available at http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf.

B. Additional information provided by the Party

Responses to questions during the review were received from Ms. Jana Kianicka (Ministry of Environment), including additional material. The following document[1] was provided by Slovakia:

Various. 2016. *EU Reference Scenario 2016. Energy, transport and GHG emissions. Trends to 2050.* publication prepared for the Directorate-General for Energy, the Directorate-General for Climate Action and the Directorate-General for Mobility and Transport, https://ec.europa.eu/energy/sites/ener/files/documents/20160713%20draft_publication_REF2016_v13.pdf.

[1] Reproduced as received from the Party.